

REMARKS

The Official Action dated April 8, 2004, has been carefully considered. Consideration of the changes and remarks presented herein and reconsideration of the rejections are therefore respectfully requested.

By the present amendment, claim 12 has been amended, finding support in the specification and drawings as originally filed. Claim 21 is amended to include limitations from previous claim 12. It is believed that these changes do not involve any introduction of new matter, and thereby entry is believed to be in order and is respectfully requested. Claims 12-24 remain in the case for consideration.

In the Official Action, the Examiner once again noted the receipt of the Information Disclosure Statement previously filed, but indicated that no Form PTO-1449 had been submitted. Applicants now provide a Form PTO-1449, which they believe provides a listing of the references previously cited by the International Bureau and as indicated in the Information Disclosure Statement.

In the Official Action, claims 12-15, 20 and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by the Nakamura et al. U.S. Patent No. 5,998,953 (hereinafter referred to as "Nakamura et al"). The Examiner asserted that Nakamura et al. illustrate by way of FIG. 4 a power supply (a battery); a traction mechanism (left and right driving wheels); dispense mechanism to deposit fluent (a pump); plurality of navigation sensors (distance detect devices, gyro sensor, distance measurement sensor); at least one deposition detector (a liquid detection sensor); and a control system (a work unit CPU). The Examiner also stated that Nakamura et al. disclose using a distance measurement sensor to detect the environment around the robot and a liquid detection sensor to detect liquid dispensed on the surface. Moreover, the Examiner asserted that Nakamura et al. illustrate a traction mechanism having

left and right traction motors. Finally, the Examiner stated that Nakamura et al. teach via FIG. 4 functions to treat floor coverings in an autonomous manner and senses and controls dispensing of fluent material on the floor covering.

However, as will be set forth in detail below, it is submitted that the self-propelled robots and methods for using the same as defined by claims 12-15, 20 and 22, are not anticipated by the teachings of Nakamura et al. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

As defined by claim 12, from which claims 13-20 and 22-24 depend, the present invention is directed toward a self-propelled robot configured for movement over a trackless surface. The robot includes a power supply, a traction mechanism, a dispense mechanism, a plurality of navigation sensors, one or more deposition detectors and a control system. The traction mechanism is configured to receive power from the power supply and move the robot over a trackless surface. The dispense mechanism is adapted to controllably deposit a fluent material onto the trackless surface. The navigation sensors provide signals for enabling the robot to navigate over the trackless surface and around obstacles thereon. The one or more deposition detectors are adapted to detect the presence of the fluent material on the trackless surface and provide signals indicative thereof. Finally, the control system is configured to receive the signals from the navigation sensors and the one or more deposition detectors and operably dependent upon the signals to control the traction and dispense mechanisms.

Nakamura et al. disclose a mobile apparatus (robot) utilized in applying wax to a surface which can determine the maximum time before another coat of wax is to be applied before degradation is identified (abstract). The mobile work apparatus includes a body for carrying out a predetermined work while moving, a first set unit for setting a time between the body carrying out the work on the common area of the first and second regions and the

next work on that area, and a second set unit for setting a travel path of the mobile work apparatus according to the time set by the first set unit (col. 2, lines 16-22). The travel path of the robot is automatically determined as a result of the user entering the horizontal length and vertical length of the work region, such that a zigzag travel can be carried out by the robot on the work region (col. 4, lines 56-60).

Rejection for anticipation or lack of novelty requires, as the first step in the query, that all elements of the claimed invention be described in single reference. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989), *cert. denied*, 493 U.S.P.Q.853 (1989). Applicants are unable to find any teaching or disclosure by Nakamura et al. of a self-propelled robot having a plurality of navigation sensors providing signals for enabling the robot to navigate over a trackless surface and around obstacles thereon. To anticipate, every element and all limitations of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383, 58 U.S.P.Q.2d 1286, 1291 (Fed. Cir. 2001); *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). Applicants find no teaching or disclosure in Nakamura et al. of any such self-propelled robot configured for movement over a trackless surface and including sensors providing signals for navigating around obstacles thereon. In fact, the Nakamura et al. reference requires that the disclosed mobile work apparatus moves along a predetermined travel path in which the apparatus travels in a zigzag direction, thus not allowing the apparatus to move around unknown obstacles it may encounter along the predetermined path. As such, the self-propelled robot in the present invention is not taught or disclosed by Nakamura et al.

It is therefore submitted, that the presently claimed self-propelled robots are not

anticipated by Nakamura et al., whereby the rejection under 35 U.S.C. §102 has been overcome. Reconsideration is respectfully requested.

Claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura et al. in view of the Nakanishi U.S. Patent No. 5,815,880 (hereinafter referred to as "Nakanishi"). The Examiner asserted the teachings of Nakamura et al., show using wax as the deposited material to wax floor surfaces. Moreover, the Examiner alleged that it would have been obvious to one skilled in the art to readily apply the teachings of Nakamura et al. to other types of treatable surfaces. The Examiner also asserted that Nakanishi teaches an autonomous cleaning robot which may include dispensing fluids such as detergents, disinfectant and waxing solution whereby the type of fluid dispensed would have been a function of the treatable surface. As such, the Examiner contended that one having ordinary skill in the art would have found it obvious to modify the robot of Nakamura et al. to dispense other fluent materials.

However, Applicants submit that the method of using the self-propelled robot as set forth in claim 23, is nonobvious over Nakamura et al. in view of Nakanishi. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Claim 23 depends from claim 12. The deficiencies of Nakamura et al. with respect to claim 12 are discussed above. Nakanishi does not resolve these deficiencies as Applicants found no teaching or suggestion by Nakanishi of a self-propelled robot as claimed and particularly having a plurality of navigation sensors providing signals for enabling the robot to navigate over the trackless surface and around obstacles thereon as recited in claim 12, and therefore in claim 23.

References relied upon to support a rejection under 35 U.S.C. §103 must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the

public, *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). The failures of Nakamura et al. are not remedied by the combination with Nakanishi. In view of the failure of Nakamura et al. and Nakanishi to teach or suggest a method for using a self-propelled robot having a plurality of navigation sensors providing signals for enabling the robot to navigate over the trackless surface and around obstacles thereon as defined in claim 23, Nakamura et al. and Nakanishi do not support a rejection of claim 23 under 35 U.S.C. § 103. Applicants therefore submit that the 35 U.S.C. § 103 rejection of the presently claimed method of using the self-propelled robot of claim 23 over Nakamura et al. in view of Nakanishi has been overcome. Reconsideration is respectfully requested.

Claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura et al. in view of the Azumi et al. U.S. Patent No. 5,622,236 (hereinafter referred to as "Azumi et al"). The Examiner once again asserted the teachings of Nakamura et al., particularly that a liquid detection sensor is used to detect deposited material. Moreover, the Examiner alleged that it would have been obvious to one skilled in the art to readily apply the teachings of Nakamura et al. such that other means of detecting deposited material could be used in conjunction with the robot. The Examiner also asserted that Azumi et al. teach mixing a luminous material with the dispensed material to aid the robot in performing its cleaning function. As such, the Examiner contended that one having ordinary skill in the art would have found it obvious to use alternative means of detecting the dispensed material in the robot of Nakamura et al. such that the luminous material would have enabled the robot of Nakamura et al. to detect the dispensed material.

However, Applicants submit that the method of using the self-propelled robot as set forth in claim 24, is nonobvious over Nakamura et al. in view of Azumi et al. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Claim 24 depends from claim 12. The deficiencies of Nakamura et al. with respect to claim 12 are discussed above. Azumi et al. do not resolve these deficiencies as Applicants found no teaching or suggestion by Azumi et al. of a self-propelled robot having a plurality of navigation sensors providing signals for enabling the robot to navigate over the trackless surface and around obstacles thereon as recited in claim 12, and therefore in claim 24. The failures of Nakamura et al. are not remedied by the combination with Azumi et al. In view of the failure of Nakamura et al. and Azumi et al. to teach or suggest a method for using a self-propelled robot as defined in claim 24, Nakamura et al. and Azumi et al. do not support a rejection under 35 U.S.C. § 103. Applicants therefore submit that the 35 U.S.C. § 103 rejection of the method of using the self-propelled robot of claim 24 over Nakamura et al. in view of Azumi et al. has been overcome. Reconsideration is respectfully requested.

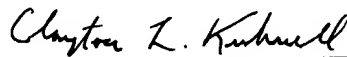
Claims 16-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura et al. in view of Sekiguchi et al., "A Mobile Robot by Multi-Hierarchical Neural Network," IEEE, Conf. on Robotics and Automation, May 1989, vol. 3, pp. 1578-83 (hereinafter referred to as "Sekiguchi et al"). Once again, the Examiner asserted the teachings of Nakamura et al. The Examiner also asserted that Sekiguchi et al. teach multi-hierarchical neural networks are used to process input information and to adapt the operation of a robot to its environment. As such, the Examiner contended that one having ordinary skill in the art would have found it obvious to apply the teaching of Sekiguchi to the robot of Nakamura et al. because it would have provided a control structure in which the robot could readily adapt its operation to its changing environment.

However, Applicants submit that the self-propelled robots set forth in claims 16-19 are nonobvious over Nakamura et al. in view of Sekiguchi et al. Accordingly, this rejection is traversed and reconsideration is respectfully requested.

Claims 16-19 depend from claim 12. As previously noted, the deficiencies of Nakamura et al. with respect to claim 12 are discussed above. Sekiguchi et al. do not resolve these deficiencies as Applicants found no teaching or suggestion by Sekiguchi et al. of a self-propelled robot configured having a plurality of navigation sensors providing signals for enabling the robot to navigate over the trackless surface and around obstacles thereon as recited in claim 12, and therefore in claims 16-19. The failures of Nakamura et al. are once again not remedied by the combination with Sekiguchi et al. In view of the failure of Nakamura et al. and Sekiguchi et al. to teach or suggest of a self-propelled robot as defined in claim 12, Nakamura et al. and Sekiguchi et al. do not support a rejection under 35 U.S.C. § 103. Applicants therefore submit that the 35 U.S.C. § 103 rejection of the self-propelled robot of claims 16-19 over Nakamura et al. in view of Sekiguchi has been overcome. Reconsideration is respectfully requested.

It is believed that the above amendments and remarks represent a complete response to the Examiner's rejections under 35 U.S.C. §§ 102 and 103, and as such, place the present application having claims 12-24 in condition for allowance. In the event that the present application is not in condition for allowance, entry of the present amendment for purposes of appeal is requested. Reconsideration and an early allowance are requested.

Respectfully submitted,



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